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ABSTRACT

The relationship between goal orientation and the use of learning strategies and their effects on learning outcomes were investigated. The three goal orientations considered were: (1) task orientation, which involves learning for its own sake; (2) ego orientation, which involves a desire to perform better than others; and (3) work avoidance, which involves the desire to put forth as little effort as possible. The two types of learning strategies studied were: (1) those requiring deep processing of information; and (2) those requiring only surface-level processing, such as simply reading a passage over and over. Sixty-two eighth graders participated in the study. Results showed that task orientation was positively correlated with valuing and use of strategies requiring deep processing of information, and to a lesser degree with those requiring only surface-level processing. Ego orientation was positively related to use and valuing of surface-level strategies only. Work avoidance was negatively related to use and valuing of both kinds of strategies. A path analysis indicated that task orientation, more than beliefs in the utility of deep-processing strategies for promoting learning, might lead to use of these strategies. A 20-item reference list, four tables and one figure are included. (Author/JAZ)

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The Influence of Task Involvement on the Use of Learning Strategies

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Abstract

This study explored the relationship between three motivational or goal orientations and valuing and use of study strategies by eighth-graders reading expository passages. Task orientation (wherein learning or understanding is an end in itself) was positively correlated with valuing and use of strategies requiring deep processing of information, and to a lesser degree those requiring only surface-level processing. Ego orientation (wherein the goal is demonstrating high ability relative to others) was positively related to use and valuing of surface-level strategies only. Work avoidance (or academic alienation) was negatively related to use and valuing of both kinds of strategies. A path analysis indicated that task orientation, more than beliefs in the utility of deep-processing strategies for promoting learning, might lead to use of these strategies.

The Influence of Task Involvement on the Use of Learning Strategies

Much attention has been paid of late to the teaching and acquisition of learning strategies. The ability to flexibly and appropriately use different learning strategies is thought to characterize "expert learners" (Brown, Bransford, Ferrara & Campione, 1983). Conversely, less able students have been characterized as either not having effective strategies in their repertoires, or not choosing to employ them appropriately during learning tasks. Comparatively little research has dealt with the role of motivational factors in determining why learners choose to employ strategies during a given task (Cavanaugh & Perlmutter, 1982).

Strategies are behaviors, or sets of behaviors, used to attain particular goals. It is this goal-directedness that makes behavior strategic. Goals are thought to guide the retrieval or activation of relevant knowledge, as well as influencing the manner in which the learner approaches the task (Flavell, 1981).

Aspects of motivation, including goals, have been included in recent theoretical models of learning and studying (e.g., Paris & Cross, 1983; Thomas & Rohwer, 1986). However, research has focused mainly on strategies themselves, rather than on goals or the

relationship of strategies to goals. The purpose of this investigation was to begin to explore this relationship. I consider first goals, then strategies and their relationship to goals.

Three types of student goals or motivational orientations toward tasks were assessed in this study (Nicholls, 1984; Nicholls, Patashnick & Nolen, 1985). First is task orientation which involves a commitment to learning for its own sake. In this case, learning or understanding is an end in itself and "the more individuals feel that they have learned, the more competent they feel" (Nicholls, 1984, p. 329). Second is ego orientation which involves a desire to perform better than others, or to establish that one's ability is superior. In this case learning or understanding is held to be experienced as a means to an end. The third motivational orientation, work avoidance, involves a desire to put forth as little effort as possible.

For the purposes of this study, two types of strategies were distinguished. First were those requiring deep processing of information, such as trying to figure out how new information fits with what one already knows, taking notes, and monitoring comprehension. Second were those requiring only surface-level processing, such as simply reading the whole passage over and over, memorizing all the new

words, and rehearsing information. These categories are similar to those used by Entwhistle and Ramsden (1983). Deep processing of information is held to be more likely to lead to understanding and retention of meaningful material than is surface-level processing (Anderson, 1980).

Paris and Cross (1983) state that knowledge of the utility of specific learning strategies is necessary if learners are to use strategies spontaneously. Strategy utility scales were designed to measure students' beliefs about the value of using deep and surface-level strategies. Information about actual use of specific strategies was gathered through a further self-report measure and by experimenter observation and inspection of students' notes.

If goals do influence both beliefs about the value or utility of strategies and strategy selection, one would expect task orientation to be positively related to learners' use and belief in the utility of deep-processing strategies. This is because for task-oriented students understanding is an end in itself (Condry & Chambers, 1978; Deci & Ryan, 1985; Nicholls, 1984). Consistent with this thesis is evidence that task orientation, more than the other orientations, was associated with the belief that academic success depends on attempts to understand rather than just memorize

material (Nicholls, et al., 1985). Ego orientation, on the other hand, was expected to be associated with more surface-level strategies, which may produce learning sufficient for passing tests. This is because ego orientation is held to mean that learning is a means to the end of superior performance rather than an end in itself (Nicholls, 1984). Finally, because work avoidance implies that learning is neither an end in itself nor a means to any valued end, this orientation was expected to be negatively related to use and valuing of both types of strategy.

A second question addressed in this study concerned the generality of motivational orientation. Specifically, does a person's report of their orientation in general predict the goals they later adopt for a specific task? It was expected that general levels of each motivational orientation would be positively related to its corresponding task-specific motivational state. Accordingly, both general orientation scales as well as parallel measures of task-specific motivational state were employed. Similarly, beliefs about the utility of deep and surface-level strategies were assessed, both in general terms and in reference to the specific experimental task.

Finally, an attempt was made, using path analysis, to determine the relative contribution of motivational

orientation (goals) and general strategy utility beliefs to spontaneous use of deep-processing strategies.

Method

Subjects

Sixty-two eighth-graders from three junior high schools in two Midwestern towns volunteered to participate and obtained parental permission. Of these, nine students either moved out of district or dropped out of the study due to time constraints. An additional three students with incomplete data sets were dropped from the analysis.

Overview of Method

Each student participated during three regularly-scheduled reading and study periods. The first session consisted of group administration of the pre-assessment measure (General Motivational Orientation Scales, General Strategy Utility Scales, perceived ability questions and self-report of last grade in a science class). Four to six weeks later, students studied a science prose passage and completed the Strategy Use Self-report, Task-specific Motivational State Scales and Task-specific Strategy Utility Scales. The following day students completed free- and cued-recall tasks over the passage they had studied.

Measures

General Motivational Orientation Scales. To assess goal orientations, students completed a questionnaire based on the Motivational Orientation Questionnaire (Nicholls, Patashnick & Nolen, 1985). The questionnaire was reworded to focus students' attention on science class. Of the 36 items, 18 were selected that reflected three different goal orientations: Task Orientation, Ego Orientation, and Work Avoidance. The respective Cronbach's alpha for each scale were .79, .76 and .80 for this sample.

Task-specific Motivational State Scales. On a five-point Likert scale, students agreed or disagreed with statements concerning their goals for the just-completed study task. Alpha coefficients for the three subscales were .81 for Task Orientation, .79 for Ego Orientation, and .68 for Work Avoidance.

Perceived Ability. Two items asked students to rate their science-studying ability on seven-point scales. The first item asked them to rate their ability in general, and the second to rate their ability compared to others in their grade (Nicholls, et al., 1985). Students also reported their most recent report card grade in science.

General Strategy Utility Scales. Students were asked to imagine studying a chapter in a science text

that concerned a really interesting topic, so that they really wanted to learn and remember the information. For each of the study strategies, students responded to the statement "This is a good thing to do if you really want to learn and remember" on a five-point Likert scale (strongly agree to strongly disagree). On the basis of previous studies (Entwhistle & Ramsden, 1983; Nolen, Meece & Blumenfeld, 1986) scales were constructed to measure ratings of deep-processing strategies (e.g., try to see how this fits with what I've learned in class) and surface-level strategies (e.g., read the whole thing over and over). Alpha coefficients were .80 and .57, respectively, for the two scales.

Strategy use. Information about students' use of various learning strategies was obtained through both observational and self-report measures. While students studied the stimulus passage, an observer recorded any overt strategy use (asking questions, consulting a dictionary or an encyclopedia). In addition, use of notetaking was recorded, and students' notes were inspected for evidence of outlining, paraphrasing or verbatim recording of information from the passage. Immediately following studying, students were asked to indicate, for each of the strategies on the General Strategy Utility Scales, whether or not they had used them to study the stimulus passage. Agreement between

observations and self-report of strategy use for the seven observable strategies was computed. For "copy some information word-for-word" and "write some of the information in your own words," agreement was 70% and 81%, respectively; agreement between student and observer ranged from 89% to 96% for the remaining five (dictionary use, encyclopedia use, notetaking, outlining and asking questions of an adult). This suggests the validity of the self-reports of strategy use. Reliability coefficients (alpha) for strategy use reports were .73 for deep-processing and .53 for surface-level strategies.

Task-specific Strategy Utility Scales. Following self- report of strategies used, students indicated on a five-point Likert scale their agreement with the statement "This would be a very helpful thing to do if I had to come back tomorrow and study a similar passage," for each of the strategies on the Strategy Use scales. Reliability coefficients for subscales for deep-processing and surface-level strategies were .88 and .73, respectively.

Recall of information. Subjects studied one of two prose passages describing recent research in botany (749 words) or animal biology (697). The passages were adapted from short articles appearing in a popular science magazine. On the day after studying, students

recalled, in writing, as much information as possible from the passage studied (free recall). Then they answered three questions about the passage, adding any further information that they might have forgotten to write down earlier (cued recall). Passages had been divided into idea units (74 and 65 units, respectively) by a group of college undergraduates.

Procedure

Students filled out the pre-assessment measures (General Motivational Orientation Scales, General Strategy Utility Scales, and Perceived Ability items) in groups of ten to fifteen. Sessions were held during regularly-scheduled reading and study periods.

Four to six weeks later, students met twice (on consecutive days) with the experimenter in groups of four to seven in the school library. Students had been randomly assigned to one of two conditions: a test condition and a tutoring condition. As these conditions did not produce main or interaction effects on task-specific motivational states, on reported strategy use, or any other index, they are not discussed in any detail.

Prior to the study session, a female experimenter explained that she was interested in finding out how students study. Students in one condition were told that they would, on the next day, try and explain their

passage to someone else, a technique that helped many students learn better. Students in a second condition were told that they would have a test the next day in which they were to explain, in their own words, what the passage said. All students were told to study individually in any way they wished, and were provided with paper on which to take notes, if they desired. Reference books were provided, and their availability and location were pointed out. Students were allowed to study for up to 30 minutes. Immediately following studying, students completed the Strategy Use Self-report, Task-specific Utility Scales, and Task-specific Motivational State Scales, in that order.

The following day, students returned to the library and completed the free and cued recalls. At this point the relevant data had been collected, but each student in the tutoring condition then explained their passage to a student who had studied a different passage. All students completed a short questionnaire asking for their reaction to the study. Test condition students were then told that the purpose of the "test" was to simulate a school situation, and that they had all done very well, considering how difficult the passage was.

Results

Separate Condition X Passage X Gender analyses of covariance were conducted on the mean item response

scores for each of the Task-specific Orientation Scales. In the absence of any effects involving experimental condition, data from the two groups was collapsed and a series of correlational analyses was used to investigate the relationship between orientation, strategy use and learning outcomes.

Motivational State Scales.

The intercorrelations among General Motivational Orientation and Task-specific Motivational State Scales are shown in Table 1. Among the general orientation scales there were no significant positive correlations. The negative correlation between Task Orientation and Work Avoidance was to be expected, given the opposing views on the value of effort implicit in these scales. Among task-specific scales, the pattern was similar to that for the general scales, although the correlation between the states of task involvement and ego involvement was, in this case, significant. These trends resemble those reported by Nicholls, et, al., 1985).

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insert Table 1 about here

Between general and task-specific scales some interesting patterns emerged. All General Motivational Orientation Scales were significantly positively related

to their task-specific counterparts. Also, General Work Avoidance was negatively related to both Task-specific Ego and Task Orientation. Interestingly, General Task Orientation was positively correlated with both the states of task and ego involvement. In contrast, General Ego Orientation was only related to its task-specific counterpart.

Strategy scales.

Intercorrelations among the six strategy scales are displayed in Table 2. All correlations were positive, indicating a relationship between students utility beliefs and their use of deep-processing and surface-level strategies. The correlations between the General Utility Scale for surface-level strategies and Strategy Use Self-report did not reach significance. In contrast, the deep-processing General Strategy Utility Scale was significantly related to use of deep-processing strategies, and not to use of surface-level strategies. T tests comparing the mean scores of deep vs. surface-level strategies for each set of scales (general and task-specific) showed that students rated deep-processing strategies as more useful than surface-level strategies (both $p < .05$).

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insert Table 2 about here

Motivational state and strategy scales

The correlations between motivational indices and the strategy measures are reported in Table 3. As expected, all significant correlations between Work Avoidance and strategy scales were negative. None of the associations involving General Ego Orientation were significant. General Task Orientation was positively related to all strategy measures, except reported use of surface-level strategies. Task-specific Task Involvement was positively related to all strategy scales.

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insert Table 3 about here

Differences between correlations were tested using Williams' T_2 for associations with a common index (Steiger, 1980). As expected General Task Orientation was more strongly positively related to all deep-processing strategy measures than either Ego Orientation or Work Avoidance (all $p < .05$). That is, Task Orientation was more strongly associated with general and task-specific beliefs in the value of deep processing strategies and with reported use of these strategies. General Ego Orientation and Work Avoidance scales did not differ significantly in their relationship to deep-processing scales. The pattern of

relationships was similar for the Task-specific Motivational State Scales, although task involvement was as strongly related to surface-level strategies as to deep-processing strategies.

Recall data

Notes and recall protocols were coded for the presence or absence of each idea unit from the studied passage. Inter-coder agreement on a random sample of 20% of the recalls was 89.6%. Total recall was computed by adding the number of units in the free recall and the number of additional units (not already recalled) found in the cued recall.

Pearson product-moment correlations were computed between the number of units recalled and the goals and strategy scales. The only associations reaching significance involved task-specific strategy utility scales (deep-processing $r = .33$, surface-level $r = .34$ with total units recalled). The mean number of units recalled for the two passages were quite low (approximately 7 idea units), with several students recalling only one or two ideas. Thus, it seems likely that factors such as passage difficulty adversely affected the sensitivity and validity of this measure, especially in view of previous findings of a positive relationship between strategy use and prose learning.

Goals and strategies: a path model.

Both task orientation and beliefs in the utility of deep-processing strategies were consistently positively correlated with their use in the present study. Although these data are correlational, path analysis allows an exploration of relative contributions of orientation and strategy utility beliefs to use of deep- processing strategies.

In this sample, neither perceived ability nor report card grade were significantly correlated with use of deep- processing strategies. Thus, the relationship between the extent to which a student values a strategy, the student's goals and motivational orientation, and his or her decision to use a particular strategy cannot be adequately explained, in this instance, by ability factors. A path analysis was, therefore, performed on the relationships among scores on the General Task Orientation Scale, General Strategy Utility Scale (deep-processing), Task-specific Task Involvement Scale and deep-processing Strategy Use Self-report. The model appears in Figure 1, with the accompanying table of decomposition in Table 4.

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insert Figure 1 about here

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insert Table 5 about here

The path analysis was performed using procedures outlined in Kim and Kohout (1975) and Pedhazur (1982). All paths between variables were assumed to be causal, with the exception of that between General Utility beliefs and Task-specific Task Involvement. It is assumed that general beliefs about the value of using particular strategies does not influence an individual's motivational orientation towards a specific task. The reverse, in this study, is impossible because general utility beliefs were assessed four to six weeks before task-specific motivation.

The causal portion of each bivariate correlation was tested for statistical reliability. Inspection of Table 5 reveals patterns consistent with the hypothesis that the level of task orientation is an important determinant of students' use of deep-processing strategies, above and beyond the effect of beliefs about the value or utility of these strategies. Task orientation appears to influence deep- processing strategy use both directly and indirectly, with a total causal correlation of .31 ($p < .01$). In contrast, the direct effect of strategy utility beliefs was non-significant.

The weakness of the direct effect of general task orientation on deep-processing strategy use is not surprising, given the non-specific nature of this measure and the four to six-week delay between its administration and the studying task (see Ericsson & Simon, 1980). It is interesting to note that there is also an indirect effect on strategy use, mediated by both task-specific task involvement and students' opinions of the general usefulness of these strategies for learning from text.

Discussion

The relationship of goals and strategies

The major hypothesis guiding this study was that students would select learning strategies congruent with their goals. Given that the use of most learning strategies require effort, one would expect a tendency to avoid schoolwork to be negatively related to the use of learning strategies in general. The findings support this expectation. Also as expected, ego orientation was not associated with valuing or use of deep-processing strategies. High General Task Orientation scores, on the other hand, were associated with use and valuing of deep-processing strategies that would lead to understanding of the material. The data for task-specific orientation showed similar patterns.

Path analysis provided further evidence for the

importance of task orientation in choosing to use of deep-processing strategies. Task orientation appears to influence the goals with which a learner approaches a specific task and, thereby, the use of deep-processing strategies on that task. Furthermore, task orientation appears to favor general beliefs in the usefulness of deep-processing strategies.

The results obtained in this study support the thesis that motivational orientations, with their associated goals, seem to play a role in learners' valuing of and decisions to use different learning strategies. Although students in this sample rated deep-processing strategies more highly than surface-level strategies, it is clear from previous research (e.g., Paris & Cross, 1983; Paris, Newman & McVey, 1982) that teaching students how and when to use strategies does not always lead them to do so spontaneously. This is consistent with the present finding that knowledge of or belief in the value of using deep-processing strategies appeared to play a minor role, compared to task orientation, in students' selection of these strategies.

This finding raises the possibility that modification of students' goals for studying may indeed have contributed to the success of some interactive strategy training programs (e.g., Palincsar, 1986;

Palincsar & Brown, 1984; Paris, Cross & Lipson, 1985). Successful teachers in Palincsar's (1986) training study, for example, stressed the goal of understanding to their pupils. It seems likely that students (at least in interactive programs like Palincsar's) would be influenced to adopt this goal as well, and would continue to spontaneously employ strategies leading to understanding.

If our goal as teachers is to foster the acquisition of meaning rather than rote memorization, the results of this study indicate that fostering ego involvement through competition for grades or teacher recognition might not be the best approach. Thus it seems that we might do well to explore ways to encourage students to value learning for its own sake. Perhaps only then will our efforts to teach students effective learning strategies be met with a desire to learn and use them.

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Table 1

Intercorrelations Among General and Task-Orientation Scales

	General Orientation		Task-specific Motivational State		
	Ego	Work Avoidance	Task	Ego	Work Avoidance
General					
Task Orientation	.19	-.27 *	.29 *	.35 **	-.28 *
Ego Orientation		.06	.08	.42 ***	-.28 *
Work Avoidance			-.31 *	.20	.57 ***
Task-specific					
Task Orientation				.27 *	-.52 ***
Ego Orientation					-.02
Work Avoidance					----

Note. n = 50.

* p < .05. ** p < .01. *** p < .001.

Table 2

Intercorrelations Among Strategy Scales

	Deep-processing strategies			Surface-level strategies		
	General Utility	Task-specific Utility	Reported Use	General Utility	Task-specific Utility	Reported Use
Deep-processing strategies						
General Utility beliefs	----	.64 ***	.38 **	.63 ***	.45 ***	.20
Task-specific Utility beliefs		----	.70 ***	.34 *	.60 ***	.38 **
Strategy Use Self-report			----	.09	.28 *	.44 ***
Surface-level strategies						
General Utility beliefs				----	.35 **	.20
Task-specific Utility beliefs					----	.55 ***
Strategy Use Self-report						----

Note. n = 50.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 3

Intercorrelations of Orientation Scales and Strategy Scales

Strategy Scales	General Orientation			Task-specific Motivational State		
	Task	Ego	Work Avoidance	Task	Ego	Work Avoidance
Deep-processing strategies						
General Utility beliefs	.45 ***	-.22	-.24 *	.40 **	.06	-.03
Task-specific Utility beliefs	.50 ***	.01	-.24 *	.68 ***	.17	-.42 ***
Strategy Use Self-Report	.32 **	.00	-.22	.49 ***	.01	-.39 ***
Surface-level strategies						
General Utility beliefs	.25 *	.03	.08	.33 **	.21	.16
Task-specific Utility beliefs	.27 *	.02	.06	.59 ***	.35 **	-.21
Strategy Use Self-Report	.16	.16	-.14	.58 ***	.39 ***	-.26 *

Note. n = 50.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Table 4

Decomposition of Pearson Correlations Between Elements of Path Model

Bivariate Relationship	Total	Causal			
	Correlation	Direct	Indirect	Total	Spurious
General Task Orientation/Task-specific Task Orientation	.28	.28	none	.28 *	none
General Task Orientation/General Utility beliefs (D-P) [1]	.40	.40	none	.40 ***	none
General Task Orientation/Strategy Use Self-report (D-P)	.31	.13	.18	.31 **	none
Task-specific Task Orientation/Strategy Use Self-Report (D-P)	.49	.39	none	.39 ***	.10
General Utility beliefs (D-P)/Strategy Use Self-Report (D-P)	.38	.18	none	.18	.20

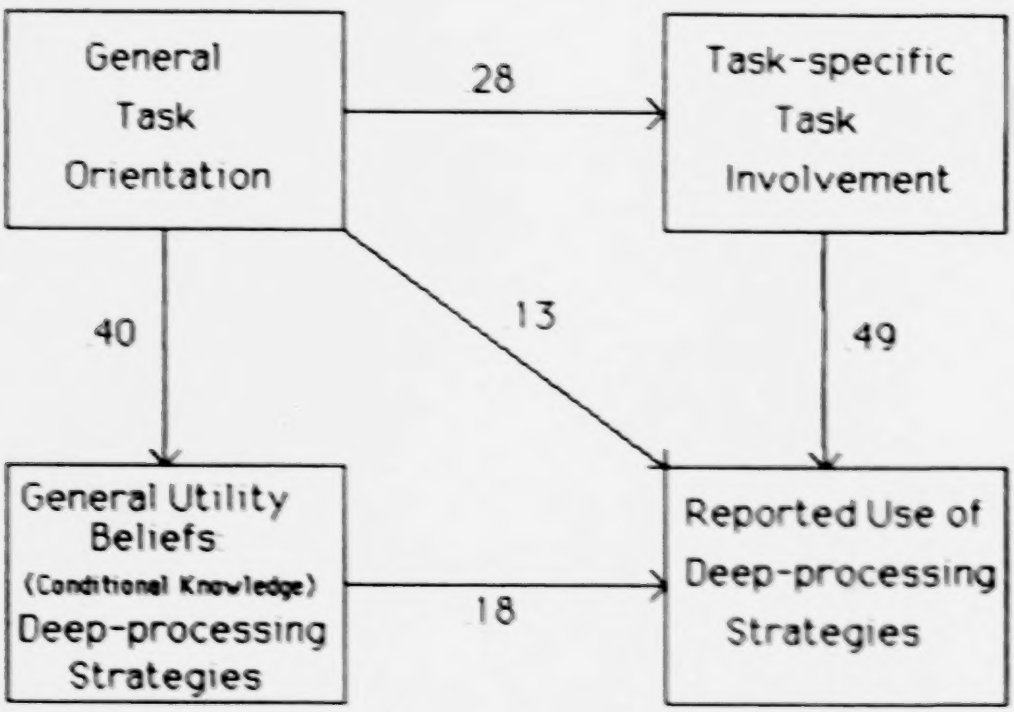
[1] Deep-processing strategies.

Note. n = 50.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Figure 1

Path Model of the Influence of Motivational Orientation and Beliefs About the Utility of Deep-Processing Strategies on Reported Use of Deep-Processing Strategies



Note. Values are path coefficients